California Regional Water Quality Control Board
North Coast Region

RESOLUTION NO. R1-2006-0038
Adopting
Watershed-Wide Waste Discharge Requirements
for
Timber Harvesting Plan Activities
Conducted by Scotia Pacific Company, Salmon Creek Corporation,
and
The Pacific Lumber Company
in the
Elk River Watershed

Humboldt County

This Resolution contains findings leading the California Regional Water Quality Control Board, North Coast Region, (hereinafter Regional Water Board) to resolve to prescribe waste discharge requirements pursuant to California Water Code section 13263.

FINDINGS

In making findings, the Regional Water Board provides an analytical roadmap of its decision. The leading statement of the standards for administrative findings is found in *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Ca1.3d 506. The court explained the reason for findings as follows:

> "Among other functions, a findings requirement serves to conduce the administrative body to draw legally relevant subconclusions supportive of its ultimate decision; the intended effect is to facilitate orderly analysis and minimize the likelihood that the agency will randomly leap from evidence to conclusions. [Citations.] In addition, findings enable the reviewing court to trace and examine the agency's mode of analysis. [Citations.]
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> "Absent such road signs, a reviewing court would be forced into unguided and resource consuming explorations; it would have to grope through the record to determine whether some combination of credible evidentiary items which supported some line of factual and legal conclusions supported the ultimate order or decision of the agency. Moreover, properly constituted findings enable the parties to the agency proceeding to determine whether and on what basis they should seek review. [Citations.] They also serve a public relations function by helping to persuade the parties that administrative decision-making is careful, reasoned, and equitable."

(*Id*. at pp. 516-517.)

The Regional Water Board finds that:

1. The Pacific Lumber Company, the Scotia Pacific Company LLC, and Salmon Creek Corporation, all subsidiaries of MAXXAM, Inc., (hereinafter collectively referred to as the "Discharger") own approximately 220,000 acres. The Discharger owns and/or conducts Timber Harvesting Plan Activities on approximately 21,000 acres (76%) of the 27,500-acre Elk River watershed, tributary to Humboldt Bay and southeast of Eureka. There are two major tributaries of the Elk River, the North, and South Forks of Elk River. The Discharger owns approximately 98% of the total watershed area within North Fork Elk River planning watersheds. In South Fork Elk River planning watersheds, the Discharger owns approximately 51% of the watershed including Railroad and Clapp Gulches.

2. The Discharger conducts timber harvesting, forestry management, road construction and maintenance, and related activities on the lands in the Elk River watershed within its ownership.

3. These activities, in general, result in impacts including increased storm water runoff and discharges of sediment, including discharges resulting from the generation of landslides.

4. With respect to the Discharger specifically, the effects from Timber Harvesting Plan Activities have prompted the Regional Water Board and Executive Officer to issue a number of orders to the Discharger addressing issues regarding submittal of information, cleanup of sediment sites, and regulation of Timber Harvesting Plan Activities:

    a. 13267(b) Orders requiring submission of technical reports:
        i. October 23, 1997, Letter requiring technical and monitoring program reports, pursuant to California Water Code section 13267(b) (requires Bear Creek sediment source inventory, sediment mitigation strategy, monitoring of habitat, morphologic, and water quality changes while sediment control strategy, and time schedule).
        ii. October 8, 1998, Letter requiring technical and monitoring program reports, pursuant to California Water Code section 13267(b) (describes association between harvesting and landslides and requires monitoring in Bear Creek and North Fork Elk River).
        iii. August 15, 2002, California Water Code section 13267(b) Monitoring and Reporting Program: Order Requiring Technical Information Monitoring and Reporting Program No. R1-2002-0088 for the Pacific Lumber Company, Scotia Pacific Company LLC, and Salmon Creek Corporation, Elk River (for stage, streamflow, turbidity, and suspended sediment water quality data to support TMDL development).
        iv. March 26, 2003, 13267(b) Letter: Order requiring technical reports related to several information gaps, pursuant to California Water Code section 13267(b) (for sediment source information for TMDL development and to support application of the Refined Empirical Sediment Budget).

v. March 26, 2003, 13267(b) Letter: Order requiring technical reports related to GIS layers, pursuant to California Water Code section 13267(b) (for spatially referenced sediment source information for TMDL development and to support application of the Refined Empirical Sediment Budget).

b. Cleanup and Abatement Orders

i. September 23, 1997, Cleanup and Abatement Order No. 97-115 for Scotia Pacific Holding Company, The Pacific Lumber Company, and Elk River Timber Company, North Fork Elk River (requires cleanup and abatement of THP-related discharges)

ii. September 22, 1998, Cleanup and Abatement Order No. 98-100 for Scotia Pacific Holding Company, The Pacific Lumber Company, North Fork Elk River (requires cleanup and abatement of THP-related discharges by restoring damaged domestic and agricultural water supplies; replaces Order No. 97-115)

iii. December 17, 2002, Cleanup and Abatement Order No. R1-2002-0114 for Scotia Pacific Holding Company, The Pacific Lumber Company, North Fork Elk River (requires identification, prioritization, and cleanup of controllable sediment source sites identified in 1998 sediment source inventory)

iv. April 2, 2004, Cleanup and Abatement Order No. R1-2004-0028 for Scotia Pacific Holding Company, The Pacific Lumber Company, South Fork and Mainstem Elk River (requires identification, prioritization, and cleanup of controllable sediment source sites)

v. April 10, 2006, Cleanup and Abatement Order No. R1-2006-0046 for Scotia Pacific Company, The Pacific Lumber Company, Freshwater Creek (requires identification, prioritization, and cleanup of controllable sediment discharge source sites)

vi. May 5, 2006, Cleanup and Abatement Order No. R1-2006-0055 for Scotia Pacific Holding Company, The Pacific Lumber Company, North Fork Elk River (requires identification, prioritization, and cleanup of controllable sediment source sites; replaces Order No. R1-2002-0114)

c. Waste Discharge Requirements[1]

i. November 17, 2002, R1-2002-0105 Waste Discharge Requirements for the Pacific Lumber Company, Scotia Pacific Company LLC, and Salmon Creek Corporation, Elk River (Winter Period Operations WDRs)

ii. January 24, 2003, Order No. R1-2003-0007 Waste Discharge Requirements for the Pacific Lumber Company, Scotia Pacific Company LLC, and Salmon Creek Corporation, Elk River (Winter Period Operations WDRs)

iii. February 27, 2003, Order No. R1-2003-0007 Waste Discharge Requirements for the Pacific Lumber Company, Scotia Pacific Company LLC, and Salmon Creek Corporation, Freshwater Creek (Winter Period Operations WDRs)

[1] These WDRs were issued for a limited period and have since expired.

iv. November 5, 2003, Order No. R1-2003-0118 Waste Discharge Requirements for the Pacific Lumber Company, Scotia Pacific Company LLC, and Salmon Creek Corporation, Elk River (Winter Period Operations WDRs), revising Order No. R1-2003-0007

v. November 5, 2003, Order No. R1-2003-0119 Waste Discharge Requirements for the Pacific Lumber Company, Scotia Pacific Company LLC, and Salmon Creek Corporation, Freshwater Creek (Winter Period Operations WDRs)

5. In 2002 the Regional Water Board convened the Independent Scientific Review Panel to provide a peer review process for resolving the various scientific differences in Elk River and Freshwater Creek. The panel consisted of seven national experts in diverse fields related to forestry and watershed dynamics. Their reports from December 2002 and August 2003 provided important impartial information to the Regional Water Board.

6. The Regional Water Board finds that there are three areas that must be addressed to resolve the water quality impairments in Elk River. First, existing discharges of sediment must be eliminated. Cleanup and Abatement Orders were issued to the Discharger in 2002 and 2004 (Cleanup and Abatement Order Nos. R1-2002-0114[2] and R1-2004-0028, respectively) to inventory, prioritize and clean up existing discharges in Elk River. Second, new sources of discharge from timber operations must be minimized. The watershed-wide WDRs are the vehicle for controlling new discharges. Third, the current effects of flooding could possibly be lessened through instream sediment removal (e.g., dredging), stream bank clearing and infrastructure improvements.

7. Section 13260 of the Water Code requires "any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of waters of the state, other than into a community sewer system" to file a report of waste discharge (ROWD).

8. The Water Code permits the Regional Water Board to regulate the discharge of waste as provided by Water Code Section 13263(a): "The regional board, after any necessary hearing, shall prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge, except discharges into a community sewer system, with relation to the conditions existing in the disposal area or receiving waters upon, or into which, the discharge is made or proposed. The requirements shall implement any relevant water quality control plans that have been adopted, and shall take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of Section 13241."

9. California Water Code section 13241 governs the establishment of water quality objectives. No new water quality objectives are established by these watershed-wide WDRs. In an abundance of caution, and out of a desire to be responsive to all issues

[2] As listed in Finding 4(b) above, Cleanup and Abatement Order No. R1-2002-0114 has since been replaced with Cleanup and Abatement Order No. R 1-2006-0055, which was issued on May 5, 2006.

raised by the Discharger, downstream residents, and the community at large, the Regional Water Board has nevertheless taken the 13241 factors into consideration; including all available evidence regarding (a) past, present and probable future beneficial uses of water; (b) environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto; (c) water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area; (d) economic considerations (see Findings 105-112 below), (e) the need for developing housing within the region, and (f) the need to develop and use recycled water.

10. The "Water Quality Control Plan for the North Coast Region" (Basin Plan) includes water quality objectives, implementation plans for point source and nonpoint source discharges of waste, prohibitions, and statewide plans and policies

Beneficial Uses

11. Pursuant to the Basin Plan, including State Water Resources Control Board (State Water Board) Resolution No. 88-63, the existing and potential beneficial uses of the Eureka Plain Hydrologic Unit, including the Elk River and its tributaries, are:

    a. Municipal and Domestic Supply (MUN)
    b. Agricultural Supply (AGR)
    c. Industrial Service Supply (IND)
    d. Groundwater Recharge (GWR)
    e. Freshwater Replenishment (FRSH)
    f. Navigation (NAV)
    g. Hydropower Generation (POW)
    h. Water Contact Recreation (REC-1)
    i. Non-contact Water Recreation (REC-2)
    j. Commercial and Sports Fishing (COMM)
    k. Cold Freshwater Habitat (COLD)
    l. Wildlife habitat (WILD)
    m. Rare, Threatened, or Endangered Species (RARE)
    n. Marine Habitat (MAR)
    o. Migration of Aquatic Organisms (MIGR)
    p. Spawning, Reproduction, and/or Early Development (SPWN)
    q. Estuarine Habitat (EST)
    r. Aquaculture (AQUA)
    s. Water Quality Enhancement (WQE)
    t. Flood Peak Attenuation/Flood Water Storage (FLD)
    u. Wetland Habitat (WET)

12. The waters of Elk River support, or before recent timber harvest related degradation of water quality, have supported, domestic and agricultural water supplies for more than

100 residents. The waters of Humboldt Bay, to which Elk River is tributary, grow 70 percent of California's commercial oysters.

13. The waters of Elk River support coho and Chinook salmon, and steelhead and cutthroat trout. Coho salmon, Chinook salmon, and steelhead trout are listed as threatened under the Federal Endangered Species Act in the Elk River watershed. Additionally, the California Fish and Game Commission amended the California Endangered Species Act (CESA) to list coho salmon as threatened in the Southern Oregon / Northern California Coast Evolutionarily Significant Unit (ESU), which includes Elk River.

Water Quality Objectives and Prohibitions

14. The Basin Plan contains water quality objectives developed to protect the above-listed beneficial uses of water. Economic impacts were considered as required by law during the development of those objectives. Additionally, the specific economic issues raised by these proposed watershed-wide Waste Discharge Requirements (hereinafter "watershed-wide WDRs") were considered in considerable detail in this process. The watershed-wide WDRs adopted by this Order (Attachment 1) implement the Basin Plan water quality objectives. Compliance with water quality objectives will protect the beneficial uses listed in Finding No. 11 above.

15. The receiving water limitations on peak flows and landslide-related sediment discharges contained in the attached watershed-wide WDRs are numeric interpretations of narrative objectives. They specifically include two prohibitions contained in the Basin Plan's *Action Plan for Logging, Construction and Associated Activities* (Basin Plan, section 4, page 4-32.00), and two water quality objectives contained in the related *Guidelines for Implementation and Enforcement of Discharge Prohibitions Relating to Logging, Construction, and Associated Activities* (Basin Plan, section 3, pages 3-2.00 and 3-3.00, and section 4, page 4-29.00):

> "1. The discharge of soil, silt, bark, slash, sawdust, or other organic or earthen material from any logging, construction or associated activity of whatever nature into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited." (Basin Plan, section 4, page 4-32.00.)
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> "2. The placing or disposal of soil, silt, bark, slash, sawdust, or other organic or earthen material from any logging, construction, or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in the basin in quantities which could be deleterious to fish, wildlife, or other beneficial uses is prohibited." (Basin Plan, section 4, page 4-32.00.)
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> "5. Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses." (Basin plan, section 4, page 4-32.00); and

"6. The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses." (Basin Plan, section 4, page 4-32.00).

16. The U.S. Environmental Protection Agency and State Water Resources Control Board may certify that the California Forest Practice Rules are Best Management Practices for timber operations on non-federal lands, at which time Timber Harvesting Activities on private and state-owned lands will be exempt from waste discharge requirements pursuant to the Z'berg-Nejedly Forest Practice Act Section 4514.3, except as provided for in Section 4514.3(b)(l)-(3). That certification has not occurred to date.

Current Conditions in Elk River

17. From 1988 to 1993, according to California Department of Forestry and Fire Protection (CDF) records, the Discharger has conducted accelerated Timber Harvesting Plan Activities throughout its entire Elk River ownership. Over the last twenty years the Discharger has harvested approximately 80% of its ownership in the Elk River and Freshwater Creek watersheds. This rate of harvest has cumulatively impacted the watershed. For example, in the North Fork Elk River watershed, the average annual rate of harvest from 1986 to 1998 was 5.4% of the Discharger's ownership, compared to an annual average harvest rate of 0.5% from 1974 to 1987. From 1999 through 2001 the annual average harvest rate was 0.3% while CDF imposed a moratorium on new plan approval due to cumulative watershed impacts. From 2002 to 2004, the annual average harvest rate increased to 4% of the Discharger's ownership in the North Fork Elk River.

18. On December 16, 1997, representatives of CDF, California Department of Fish and Game, California Division of Mines and Geology (now known as the California Geologic Survey), and Regional Water Board staff[3] reached consensus that the Elk River watershed had significant adverse cumulative watershed impacts, with timber harvesting a contributing factor.

19. Sediment deliveries to Elk River have increased in response to accelerated Timber Harvesting Plan Activities, resulting in impacts to water quality conditions documented by residents and Regional Water Board staff:

    a. Significant discharges of sediment and organic debris to watercourses aggraded the stream channels in some areas, significantly reducing channel capacity and, along with increased peak flows, contributed to increased flood frequencies and severity;

[3] Notably the Regional Water Board staff working on this matter were separated into two groups: the Issuance Team, tasked with presenting the watershed-wide WDRs to the Regional Water Board for consideration, and the Advisory Team, tasked to assist the Regional Water Board's decision making. (See Finding 127 below [incorporating Final Order After Status Conference].) Unless specifically noted otherwise, the term "staff' or "Regional Water Board staff" refers to members of the Issuance Team.

b. Increased flooding threatens public health and safety, including unsafe passage on roads and bridges, and limited ingress and egress to homes and structures. Flooding is a nuisance condition under the California Water Code (CWC) and must be addressed under the watershed-wide WDRs (CWC, sections 13050 and 13263);
c. Increased sediment and organic material can also produce tastes and odors offensive to the senses, and damage surface water supply intakes, treatment systems and domestic plumbing and appliances; and
d. Increased turbidity due to excessive fine sediments also provides a medium to promote bacteriological growths and reduces the effectiveness of water disinfection for domestic water supplies.

Residents and Salmon Forever report to the Regional Water Board that these effects continue in nature and extent.

20. Excessive fine sediment has been shown to detrimentally affect spawning gravel for fish and to reduce survival from egg to emergence stages by reducing intragravel oxygen and gravel permeability and by entombing fish larvae within gravel interstices, and can reduce the production of food organisms for juvenile fish. Furthermore, increased excessive bedload results in deposition of sediment that reduces stream pool size and habitat availability for aquatic species, and reduces channel capacity, which leads to increased flooding of adjacent lands. It also results in reduced summer storage due to filled pools, and may reduce surface flow since much of the streamflow is within the channel sediments during the summer.

21. The Elk River watershed is listed as an impaired water body under Section 303(d) of the Clean Water Act due to sedimentation/siltation. Water quality problems cited under the listing include: sedimentation, threat of sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, and property damage.

22. Conditions in this watershed, tools for recovery, and the linkages to Timber Harvesting Plan Activities and associated road construction are documented in a number of reports and scientific panel reviews:

a. *Sediment Source Investigation Reduction Plan for the North Fork Elk River Watershed, Humboldt County, California* (PWA 1998):[4] "both road construction and harvesting have been linked to increased sediment production and yield in the North Fork Elk River." In addition, various landslide processes were found to constitute the largest percentage of sediment sources in this watershed, a significant portion of which is related to timber harvest related activities.

[4] Full citations to literature cited in the Findings appear in the "References cited" sections of Attachments A and B to the watershed-wide WDRs, Response to Comments dated September 2, 2005, and Supplemental Response to Comments dated April 14, 2006.

b. *An Analysis of Flooding in Elk River and Freshwater Creek Watershed, Humboldt County, California* (1999): A CDF-commissioned Blue Ribbon panel of University of California scientists (U.C. Panel, July 1, 1999) review concluded, in part, that the submitted analysis was incomplete and incorrect, and that flooding was likely increased significantly by the Discharger's timber harvesting and related activities. In addition, the U.C. Panel noted that there is aggradation in the North Fork Elk River, and that the material is still being transported through the fluvial system.

c. The North Coast Regional Water Quality Control Board *Staff Report for Proposed Regional Water Board Actions in the North Fork Elk River, Bear Creek, Freshwater Creek, Jordan Creek and Stitz Creek Watersheds* (Sept. 9, 2000): This document described and annotated the increased sediment deliveries to watercourses from harvested lands, increased flooding impacts, the accelerated rate of land-disturbing Timber Harvesting Activities, and its correlation to these impacts. The document also proposed alternative or combined courses of action for reducing these impacts, including, but not limited to, the issuance of watershed-wide WDRs.

d. The University of California Committee on Cumulative Watershed Effects found in their June 2001 report, *A Scientific Basis for the Prediction of Cumulative Watershed Effects*, that an increase in peak flow rates due to timber harvesting is likely under the current harvest rates and that this increase in peak flow translates into an increase in flood risk.

e. The scientists at the USDA Forest Service Redwood Sciences Laboratory, among others, have intensively studied the Caspar Creek Experimental Watershed in Mendocino County. They derived the Caspar Creek peak flow model, which the Pacific Lumber Company (PALCO 2000) adapted from the published results of the Caspar Creek experiment (Lewis et al. 2001) and utilized for conducting the watershed analysis required under their Habitat Conservation Plan (HCP.) The peak flow model that the discharger derived has been used since 2002 for evaluating and regulating runoff from timber harvesting and related activities in both Freshwater Creek and Elk River and is contained in their January 23, 2006 proposed alternative watershed-wide WDRs. The Caspar Creek study is uniquely appropriate because it evaluated the hydrologic effects of conducting timber harvesting and related activities in second-growth redwood forests. Also, Caspar Creek is representative of conditions in many northern California coast watersheds. The Caspar Creek watershed is similar to the Elk River and Freshwater Creek watersheds in terms of its coastal location, vegetation, rainfall patterns, and land use.

f. At the request and under the direction of licensed professionals on the Regional Water Board staff, scientists at the USDA Forest Service Pacific Southwest Research Station's Redwood Sciences Laboratory (RSL) in Arcata, California, prepared analyses of the data in PWA's reports for Bear Creek (Reid 1998a) and for North Fork Elk River (Reid 1998b). These analyses, authored by Dr. Leslie Reid,

highlighted the strong relationship between recent logging and increases in landslide-delivered sediment in these watersheds. Furthermore, based on these relationships and the data available in PWA's reports, the analyses offered simple empirical models (each based on the same general approach) that could be used to determine future rates of timber harvesting that would adequately protect the beneficial uses of water from future harvest-related landslides, achieve water quality objectives, and allow for watershed recovery from cumulative impacts. Specifically, the approach identifies the rate of sediment production expected on forested acres and those expected from harvested acres.

g. The Independent Scientific Review Panel (December 27, 2002) reviewed CDF's application of the empirical peak flow model used to establish the annual timber harvesting limitation of 600 equivalent clearcut acres for the Elk River watershed. The Independent Scientific Review Panel concluded that "the approach does not take into account sediment production or changes in the sediment transport capacity of channels that might result from harvest." Further, because the CDF approach is designed to maintain the current level of impairment rather than promote recovery, this approach "yields a high risk that current harvest rates will not achieve recovery of beneficial uses of water in impaired water bodies." (Notably, CDF can, at any time, lift the harvest cap without consulting with the Regional Water Board about resulting impacts on the watersheds.)

h. The Independent Scientific Review Panel found that Reid's approach, referred to in their reports as the "empirical sediment budget approach," was superior to the other methodologies it reviewed, given the information currently available in the Five Watersheds. They stated that the empirical sediment budget's use of sediment production ratios, rather than absolute rates, alleviated much of the difficulty associated with background rate estimation by determining a ratio of harvested to background rates. Acknowledging criticisms to the empirical sediment budget approach (primarily that it did not consider areas that were off-limits to harvesting because of high landslide potential), the Independent Scientific Review Panel identified means of addressing those issues. In Appendix C of its first report (ISRP 2002), the Independent Scientific Review Panel provided a detailed discussion and derivation of a refined version of Dr. Reid's initial work in which they identified how to consider the sediment production from areas with different landslide hazards. Regional Water Board staff have modified the original model based on those recommendations.

i. Regional Water Board staff's *Preliminary Assessment of Flooding in Lower Elk River* (Patenaude 2004) concluded that: (1) channel capacity as a function of cross-sectional area decreased by at least 35% from 1965 to 2003; (2) the channel capacity as a function of streamflow capacity has decreased by 60% between 1965 and 1998; and (3) the channel capacity as a function of bankfull depth decreased by at least 20% from 1965 to 2003. Residents' reports of recent increased flooding

frequency and magnitude in lower Elk River are consistent with these measured physical changes.

23. The Regional Water Board Executive Officer has issued Cleanup and Abatement Orders to address existing sediment sources and water supplies in the Elk River watershed:

    a. Order No. 98-100 (replaced Order No. 97-115): determine which agricultural and/or domestic water supplies are affected and abate the effects by providing alternate water supplies and restore historic, existing and potential beneficial uses.

    b. Order No. R1-2006-0055 (replaced Order No. R1-2002-0114): submit workplans and begin work on remediation of sediment delivery sites, both road and non road related, in the Elk River watershed, and assess in-stream sediment deposits, options for remediation, a treatment schedule for remediation, and implement the plan.

    c. Order No. R1-2004-0028: submit information on sediment source inventories in the South Fork and Mainstem Elk River watersheds, submit a workplan and treatment schedule for remediation, implement the plan, and monitor.

24. Dr. Kate Sullivan, on behalf of the Discharger, described conditions in Elk River and Freshwater Creek differently at the evidentiary hearing. She presented the view that, judging from the last three years of data, sediment loads are improving. This contradicts another expert who testified on behalf of the Discharger, Dr. Megahan, who stated, "Annual sediment yields have been monitored for the past 3 years at the mouth of the Elk River and Freshwater Creek Watersheds but the data are not long enough to detect a trend." (Megahan 2006). Moreover, other monitoring does not indicate an improving trend in sediment load over the same period. For example, Manka (2005) shows suspended sediment loads in the stream are 10 to 20 times higher in these harvested watersheds than in the virtually unharvested Little South Fork Elk River. Moreover, 2003 trend monitoring data suggest that channel cross-sectional area in mainstem Elk River is currently 60% of historical (1965) cross-sectional area due to sediment accumulations, and 3 out of 4 water quality-related monitoring parameters remain below HCP target levels at a majority of monitored sites. (See August 25, 2004 staff report to the Regional Water Board, Attachment 3; and oral testimony by David Kuszmar at the April 24-25, 2006 Regional Water Board meeting). The Regional Water Board finds that Dr. Sullivan's statements are outweighed by the other evidence in the record.

25. In her testimony, Dr. Sullivan claimed that the proposed receiving water limitations in the waste discharge requirements address only 2% of all landslide-related discharges in Elk River and Freshwater Creek. On the contrary, the proposed receiving water limitations address discharges from non-road related landslides, which, according to the Discharger's own sediment inventories, represent as much as 23% of all sediment delivered to North Fork Elk River and as much as 51% of all sediment delivered to Freshwater Creek, during the period of 1955 to 1997. (Letter from Issuance Team to Kuhlman and Spiess dated April 27, 2006, p. 5; WWDRs Attachment C, pp. 10-11,

13-14; Response to Comments, Sec. 9, pp. 11-12; Supplemental Response to Comments, pp. 16-17; oral testimony by David Kuszmar at the April 24-25, 2006 Regional Water Board hearing.) Furthermore, within the category of non-road related landslides, harvest-related landslides account for 1.9 to 19 times more sediment delivery per acre than naturally occurring landslides, depending on watershed and hazard zone. (See April 13, 2005 staff report to the Regional Water Board, p. 2; WWDRs Attachment C, Appendix B pp. 1-3; and oral testimony by David Kuszmar at the April 24-25, 2006 Regional Water Board hearing.) The Regional Water Board is entitled to rely on the opinions of its staff and those opinions constitute substantial evidence. (*City of Rancho Cucamonga* v. *Regional Water Quality Control Board-Santa Ana Region* (2006) 135 Cal.App.4th 1377, 1389 ("*Rancho Cucamonga*").) Based on the opinion of its staff, the Regional Water Board finds that the comment has been adequately addressed and that the weight of evidence in the record indicates that discharges from non-road related landslides, particularly those that result from timber harvesting, are a significant source of sediment in Elk River and Freshwater Creek.

Existing Regulatory Requirements Ineffective

26. The Discharger currently is proposing to engage in Timber Harvesting Plan Activities within its Elk River ownership. These activities are regulated, in part, to protect special-status wildlife species.

27. These controls derive from a multi-species Habitat Conservation Plan (HCP), for the Discharger's lands. The agreement to implement the HCP on the Discharger's lands was entered into in March 1999 by the Discharger, the US Fish and Wildlife Service, National Marine Fisheries Service (NMFS, now called NOAA Fisheries Service or NOAA Fisheries), and the California Department of Fish & Game (DFG) (collectively referred to as the Wildlife Agencies). The Regional Water Board was neither a signatory to the HCP nor can the Regional Water Board enforce it. The HCP was prepared to address the requirements of the federal Endangered Species Act (FESA) and the California Fish and Game Code with regard to listed (and potentially listed) species, including listed salmonids. The Implementation Agreement for the HCP states, in part, "notwithstanding any other provisions in this Agreement all activities undertaken pursuant to this Agreement, the HCP, or the Federal or State Permits must be in compliance with all applicable Federal and state laws and regulations."

28. The HCP imposes certain prescriptions and other benefits that form an important and valued platform upon which the watershed-wide WDRs build. However, the HCP was not designed to, and can not, ensure full compliance with the federal and state water quality laws and regulations, such as the Basin Plan prohibition against discharge of sediment waste in amounts deleterious to beneficial uses such as domestic drinking water supplies. The Porter-Cologne Act requires the protection of a broad range of beneficial uses such as recreation, navigation, aquatic species and flora, which are simply not addressed by the state and federal Endangered Species Acts. The HCP does not protect against nuisance flooding or directly remediate aggradation of stream channels. Section

3.4.1.3 (page 3.4-13) of the *Final Environmental Impact Statement/Environmental Impact Report For the Headwaters Forest Acquisition and the PALCO Sustained Yield Plan and Habitat Conservation Plan* states: "Because the proposed HCP/SYP is not designed specifically to address impaired waters to meet the water quality criteria, additional restrictions and BMPs may be required later by the TMDL process. These future restrictions could conflict with some management components of the proposed HCP/SYP. Such future effects of the Clean Water Act enforcement are beyond the scope of this document and thus will not be addressed here." Additionally, the HCP requirements are calculated to result in a trend toward properly functioning watershed conditions over a period of 50 years: the HCP was not designed to achieve compliance with applicable water quality standards, the legal requirements in the Basin Plan or other applicable water quality laws, including the California Water Code and the Federal Clean Water Act. The Regional Water Boards, however, are required to regulate water quality in a manner that will achieve compliance with those laws.

29. Under the HCP, the Discharger implements road-related sediment reduction strategies through CDF's THP process. Particularly, the Discharger "upgrades" all appurtenant roads associated with approved THPs, and employs a "zero net discharge" sediment offset strategy. Such properly implemented efforts can be effective at reducing sediment discharges from Timber Harvesting Plan Activities over the long term. These upgrades and other "offset mitigation" activities are activities that could and sometimes are required by law to be abated as an existing obligation of the landowner under the California Water Code (e.g., section 13304), raising the question of whether such reductions should be used to give credit for new discharges, and if so, to what extent. Additionally, while there are desirable long-term benefits to these activities, there are also short-term increases in discharges commonly arising from these activities that should be taken into account as well. Finally, without the inclusion of limits addressing peak flow and landslide effects on water quality, these upgrades and offsets cannot and will not by themselves result in compliance with applicable water quality standards, objectives, and prohibitions.

30. The HCP originally was written with a set of interim prescriptions, which are generally more protective than the California Forest Practice Rules. The HCP allows for the interim prescriptions to be modified following a Level 2 watershed analysis. Whereas a Level 1 assessment involves specific guidelines, tools, and methods to characterize watershed conditions based primarily on existing information (so-called "table top assessment"), a Level 2 assessment utilizes more quantitative tools and methods involving the acquisition of field data and use of detailed scientific analyses. The Elk River Watershed Analysis is completed and a set of revised prescriptions has been approved. The revised prescriptions will replace the interim prescriptions in Elk River with generally less restrictive measures, including riparian protections reduced below the current Forest Practices Rules. These measures will result in less protection toward reducing cumulative impacts and nuisance flooding, and they do not ensure recovery of impaired beneficial uses (e.g., domestic drinking water supplies).

31. Another vehicle for prescription changes under the HCP is the adaptive management process by which information about the effectiveness of different practices can be used to revise the prescription requirements. Numerous changes to the interim prescriptions, which apply property-wide, have been modified via the adaptive management process. As with the Watershed Analysis process, the majority of adaptive management changes correspond to reduced resource protection, including reduced mass wasting protections. The Regional Water Board is not a signatory party to the HCP, has no rights to enforce it, and has no authority to approve or disapprove of amendments, including, but not limited to adaptive management changes.

32. Accordingly, as the Independent Scientific Review Panel also found, compliance with the HCP prescriptions alone will not ensure that continued timber harvesting by the Discharger will comply with the Basin Plan and protect water quality. The Regional Water Board agrees with the Independent Scientific Review Panel that the HCP prescriptions are insufficient by themselves to ensure that all beneficial uses of water are protected. The Regional Water Board finds that the seriously degraded nature of Elk River and Freshwater Creek will require additional regulation and greater remedial actions than required by the HCP.

33. The Board adopted *General Waste Discharge Requirements for Discharges Related to Timber Harvest Activities On Non-Federal Lands in the North Coast Region* (Order No. R1-2004-0030) (GWDRs) on June 23, 2004. Against the backdrop of the findings described above, the Board included a provision in the GWDRs that provides that the Executive Officer "shall rescind or deny the applicability of these General WDRs" where, among other things, "conditions unique to the watershed or watershed segment (including, but not limited to, cumulative impacts, special hydrographic characteristics, Total Maximum Daily Load standards, the extent of Timber Harvesting Plan Activities, intensity of ground disturbing activities, large acreage ownership holdings or management plans, rainfall, slopes, soil, effected domestic water supplies, an increased risk of flooding, or proximity to local, State, or National Parks) warrant further regulation."

34. The Regional Water Board adopted the Categorical Waiver of Waste Discharge Requirements for Discharges Related to Timber Harvest Activities on Non-Federal Lands in the North Coast Region (Order R1-2004-0016, Categorical Waiver) on June 23, 2004. That Order contains the same language as the GWDR (Finding 33) regarding rescission or denial of a waiver.

35. Due to the existing cumulative impacts arising from this Discharger's history of intensive ground-disturbing activities, large acreage ownership, rainfall, slopes, soil, affected domestic water supplies, increased risk of flooding, and other reasons set out herein, the Discharger's proposed watershed-wide Timber Harvesting Plan Activities in Elk River are not eligible for coverage under the Categorical Waiver of Waste Discharge Requirements for Discharges Related to Timber Harvest Activities on Non-Federal Lands in the North Coast Region (Categorical Waiver) (Order No. R1-2004-0016), nor

the General Waste Discharge Requirements for Discharges Related to Timber Harvest Activities on Non-Federal Lands in the North Coast Region (GWDR) (Order No. R1-2004-0030), adopted by the Regional Water Board on June 23, 2004.

Development of Watershed-Wide WDRs

36. In recognition of the conditions in the Elk River and Freshwater Creek watersheds and the linkage to Timber Harvesting Plan Activities, the Regional Water Board approved motions on December 3, 2003: (1) additional regulatory and non-regulatory actions are necessary due to the rate and scale of land disturbing activities in the five impaired watersheds, including Elk River; (2) direction to develop a Cleanup and Abatement Order to address sediment sites (Order No. R1-2004-0028) and issue a Time Schedule Order if the due dates contained in the Order are not met; and (3) require the submittal of Reports of Waste Discharge which would lead to watershed-specific Waste Discharge Requirements. (See Attachment 3.)

37. On June 17, 2004, the Executive Officer required submission of a Report of Waste Discharge (ROWD) for the Elk River watershed from the Discharger by July 16,2004. The Discharger submitted a ROWD on October 6,2004, which did not contain all of the information required. Staff determined the ROWD to be complete on January 25, 2005, once the Discharger had submitted most of the required information in signed and stamped final versions. Staff review of the data revealed numerous questions regarding accuracy and completeness. Over the ensuing six months, staff continued to work with the Discharger to resolve questions surrounding data completeness and accuracy, in a collaborative manner, yielding the current, more refined data sets upon which the attached watershed-wide WDRs are based.

38. Regional Water Board staff have developed a framework for the watershed-wide WDRs that addresses cumulative watershed effects by continuing compliance with the CAOs, through numeric receiving water limitations for peak flow (nuisance reduction) and sediment yield from timber harvest related landslides, and other terms set out in the attached watershed-wide WDRs.

Receiving Water Limitation for Nuisance Flooding

39. Frequent flooding limits the residents' ingress and egress to their property. In particular, the U.S. Army Corps of Engineers (1975), in their report on flooding in Freshwater Creek, described several potential hazards: people can become trapped in their homes or vehicles; the force of the floodwaters and debris deposits can rupture waterlines and risk contamination of domestic water supplies; and isolation of areas by floodwater creates hazards in terms of medical, fire, or law enforcement emergencies. Property damage includes fences being knocked down during floods, loss of agricultural productivity through deposition of silt on crops, threats to septic systems, loss of water supplies by filling of pools with sediment, and wear and failure of pumps and other mechanical devices. When floodwaters enter homes, they cause damage to floorings, furniture,

walls, etc. and require residents to raise furniture and property for its protection. Cleanup after a flood event is costly and time-consuming. Residents attempt to protect their homes from floodwaters by using sandbags or by constructing walls and levees. Due to increased risk of flooding, property values are reduced and flood insurance is difficult to obtain and expensive to maintain. Nuisance expresses itself in different forms: emotional and psychological distress of floodwaters entering a property or home, financial hardship, and anxiety. All of these effects constitute a nuisance condition.

40. The Water Code and Basin Plan, taken together, not only require the consideration of the need to prevent nuisance (Water Code § 13263(a)) in the issuance of WDRs, but more specifically require the prevention of nuisance associated with a discharge of waste, including specifically sediment waste. (*Ibid.*; Basin Plan, section 4, page 4-32.00.) Nuisance is defined by California Water Code section 13050 as anything that meets all of the following requirements: (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. (3) Occurs during, or as a result of, the treatment or disposal of waste.

41. Flooding is caused by discharges of increased runoff. Canopy removal results in increased storm water runoff. The increased frequency and magnitude of flooding in Elk River and Freshwater Creek results primarily from a combination of two factors: reduced channel capacity and altered hydrology. A decrease in channel capacity has been documented in Elk River (Patenaude 2004) and in Freshwater Creek (Caltrans 2003). Studies from Caspar Creek experimental watershed confirm that peak flow response to logging results from the reduction in vegetative cover. Reducing vegetative cover, particularly large trees, reduces evapotranspiration and rainfall interception (Ziemer 1998). Hydrology is also altered by changes that lower infiltration (for example, from compaction of soil) and increase the stream network (for example, construction of inside road ditches and gullies) in the watershed.

42. The frequency and amount of floodflow necessary to constitute nuisance occurs, in essence, at the point where (1) it affects a considerable number of persons and (2) is injurious to health or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. (Water Code section 13050.)

43. Flooding in the Elk River and Freshwater Creek watersheds have reached nuisance levels. Residents downstream of the Discharger's timber harvesting activities in Elk River watershed filed formal complaints with the Regional Water Board (and other State agencies) contending the increased magnitude (i.e. water surface elevation) and frequency of flooding in the lower portion of the two watersheds have and are continuing to significantly affect the beneficial uses of water and the public health and safety of downstream residents.

44. Waste discharge requirements must address the need to prevent nuisance associated with the treatment or disposal of waste. The waste discharge requirements for timber harvesting plan activities, therefore, must include a standard that, when achieved, will represent the elimination of nuisance. Because nuisance flooding is a component of the condition of the receiving water, the standard has been expressed in the waste discharge requirements as a receiving water limitation.

45. Setting the receiving water limitation requires the Regional Water Board to determine at what point flooding is sufficiently minor to no longer constitute a nuisance, for purposes of compliance with the Porter-Cologne Water Quality Control Act and the Basin Plan.

46. The determination of what factors collectively amount to a nuisance is one that requires the Regional Water Board to exercise its discretion. Case law regarding this determination when made by courts is instructive. Defining a nuisance allows a court to exercise "considerable judicial discretion." (*City of Bakersfield v. Miller* (1966) 64 Cal.2d 93, 99.) It is a question for the "trier of fact." (*Hellman v. LaCumbre Golf and Country Club* (1992) 6 Cal.App.4th 1224, 1231.) Accordingly, determining what constitutes a nuisance is a case-by-case, fact-based process.

47. Establishing the point at which flood flows become a nuisance required field studies in the Elk River watershed. Watershed conditions affecting nuisance flooding include the reduction of channel capacity, primarily by the aggradation of sediment from previous discharges. Therefore, by reducing the canopy removal in this watershed, nuisance flooding can be reduced, but it will not be eliminated.

48. The nuisance condition is a function of two components: (1) critical water level and (2) frequency that level is attained or exceeded.

49. A key location affecting access and egress for residents of both North Fork and South Fork Elk River is immediately downstream of the North Fork Elk River Bridge and the intersection of Elk River Road and Wrigley Road. As floodwaters rise, they eventually reach the level at which one lane and finally both lanes of Elk River Road are covered. Field studies establish that the flow at which one lane is covered is 588 cubic feet per second (cfs). At 640 cfs, both lanes are covered at depths of up to 2 feet. At the point that one lane is flooded, traffic going opposite directions must travel in the same lane. This condition not only reduces the capacity of the roadway, but also increases the chance of vehicle accidents and therefore poses a traffic hazard. Because of the threat to public safety and the interference with the free use of property, the level at which floodwater blocks one lane of the road is selected as one component of the nuisance condition.

50. The second component of the nuisance condition, frequency of the 588 cfs event, is derived from monitoring data. Increases in peak flow are determined using a mathematical model. The model, known as the "Empirical Peak Flow Reduction Model," has a lengthy development history.

51. The scientists at the USDA Forest Service Redwood Sciences Laboratory, among others, have intensively studied the Caspar Creek Experimental Watershed in Mendocino County. They derived the Caspar Creek peak flow model, which the Pacific Lumber Company (PALCO 2000) adapted from the published results of the Caspar Creek experiment (Lewis et al. 2001) and utilized for conducting the watershed analysis required under their Habitat Conservation Plan (HCP). The peak flow model that PALCO derived has been used since 2002 for evaluating and regulating runoff from timber harvesting and related activities in both Freshwater Creek and Elk River and is contained in their January 23, 2006 proposed alternative watershed-wide WDRs. The Caspar Creek study is uniquely appropriate because it evaluated the hydrologic effects of conducting timber harvesting and related activities in second-growth redwood forests. Also, Caspar Creek is representative of conditions in many northern California coast watersheds. The Caspar Creek watershed is similar to the Elk River and Freshwater Creek watersheds in terms of its coastal location, vegetation, rainfall patterns, and land use.

52. CDF, using the peak flow model, conducted analyses in the Elk River watershed in 2002 to determine a canopy removal rate that would not result in an increase in peak flow over the then current (2001/2002) conditions. In 2002, CDF imposed, and the discharger accepted, allowable timber harvesting acreage limitations in the Elk River watershed of 600 clearcut equivalent acres per year. Those limits are still in effect as CDF's caps on approvable levels of harvest activities under the Forest Practice Act and Rules. This is the same peak flow model used in the attached watershed-wide WDRs (the Staff Peak Flow Model) to calculate a numeric receiving water limit. The use of that model in these watershed-wide WDRs differs only in that it employs more conservative assumptions and goals and uses data sets more appropriate to this application, in order to address cumulative impacts and nuisance conditions sufficient to meet applicable water quality standards, objectives and prohibitions, and to protect and restore damaged beneficial uses.

53. In oral testimony and written comments, several criticisms were made of the Staff Peak Flow Model.

54. According to Dr. Megahan, the model cannot accurately estimate peak flow increases where harvested area of the watershed is less than 30 percent, making the model too coarse a tool for use in these watersheds. Staff has explained that the model can actually predict changes in peak flow for smaller harvested areas. (See Supplemental Responses to Comments dated April 14, 2006, p. 23.) The Regional Water Board is entitled to rely on the opinions of its of staff and those opinions constitute substantial evidence. (*Rancho Cucamonga, supra,* 135 Cal.App.4th at p. 1389.) Based on the opinion of its staff, the Regional Water Board finds that the comment has been adequately addressed and that the weight of evidence in the record indicates that the Staff Peak Flow Model is sound.

55. Dr. Megahan also contends that the Staff Peak Flow Model is inapplicable because the watershed in which it was developed (Caspar Creek) is too dissimilar to Elk River and

Freshwater Creek. According to Regional Water Board staff, while the watersheds are significantly different in size, which can affect peak flows, this impact is offset by differences in the watersheds' road and skid trail networks. (See Response to Comments, Sec. 13, p. 14; WWDRs Attachment B, pp. 13-15; and oral testimony by Matthew Buffleben at the April 24-25, 2006 Regional Water Board hearing.) The Regional Water Board is entitled to rely on the opinions of its of staff and those opinions constitute substantial evidence. (*Rancho Cucamonga, supra,* 135 Cal.App.4th at p. 1389.) Based on the opinion of its staff, the Regional Water Board finds that the comment has been adequately addressed and that the weight of evidence in the record indicates that the staff appropriately accounted for differences in watershed size in the Staff Peak Flow Model.

56. Dr. Megahan contends the model has a large error band. According to staff, this may be true for individual storm events, but the model is not designed to accurately predict the response from individual events. Instead it is designed to predict the average response of the watershed over an entire year of storms. For this purpose, the model is shown to predict watershed response with 95 percent confidence. (See Response to Comments, Sec. 13, p. 18; WWDRs Attachment B, p. 13; and oral testimony by Matthew Buffleben at the April 24-25, 2006 Regional Water Board hearing.) The Regional Water Board is entitled to rely on the opinions of its of staff and those opinions constitute substantial evidence. (*Rancho Cucamonga, supra,* 135 Cal.App.4th at p. 1389.) Based on the opinion of its staff, the Regional Water Board finds that the comment has been adequately addressed and that the weight of evidence in the record indicates that the Staff Peak Flow Model is a sufficiently accurate predictor of peak flow changes resulting from timber harvesting.

57. Both the Discharger and Dr. Megahan have contended that the Staff Peak Flow Model uses improper input variables. The scientific rationale for staff selection of these values is explained by Regional Water Board staff at length in WWDRs Attachment B. The mathematical relationships and statistical analyses relied upon are also discussed at length in WWDRs Attachment B. It should be further distinguished that the difference between input variables assigned by staff and those used in the CDF application of the Peak Flow Model is that staff set input parameters to achieve a 5% reduction in peak flow increases over a 10 year period while CDF used the model to assure that peak flows would not be increased over current levels estimated as 10% increase of peak flow exceedence. The Regional Water Board is entitled to rely on the opinions of its of staff and those opinions constitute substantial evidence. (*Rancho Cucamonga, supra, 135* Cal.App.4th at p. 1389.) Based on the opinion of its staff, the Regional Water Board finds that the comment has been adequately addressed and that the weight of evidence in the record indicates that the staff chose appropriate input variables for the Staff Peak Flow Model.

58. Based on the above development process, the lack of merit to criticisms, and other evidence in the record, the Regional Water Board concludes that best available information demonstrates that the Staff Peak Flow Model provides a scientifically sound method for describing the relationship between timber harvesting and conditions in the

receiving water and for showing how changes in harvesting will, over time, reduce the frequency and magnitude of nuisance flooding. The Regional Water Board bases this conclusion on the evidence in the record, in particular the opinions of its staff. The Regional Water Board is entitled to rely on the opinions of its of staff and those opinions constitute substantial evidence. (*Rancho Cucamonga, supra,* 135 Cal.App.4th at p. 1389.)

59. The Staff Peak Flow Model was used to characterize the flooding conditions in Elk River and Freshwater Creek under current conditions and to project future flooding conditions under alternative timber harvest rate scenarios. For Freshwater Creek and North Fork Elk River where the bulk of flooding complaints have originated, the Staff Model estimates that the current increases in peak flow due to canopy removal are approximately 10 percent more often than it would under background conditions. In South Fork Elk River, the increases in peak flow are below 5 percent above the expected background.

60. The increases in peak flow due to canopy removal that cause a nuisance is, therefore, somewhere between 5 and 10 percent greater than background conditions. As an initial estimate, Regional Water Board staff recommends that the Regional Water Board use 5 percent above background conditions as the threshold for nuisance increases in peak flow and hence nuisance. After further consideration, the Regional Water Board finds that a slightly higher rate of 7 percent above background conditions is an acceptable decrease in peak flow. This rate represents a significant reduction in peak flows for both North Fork Elk River and Freshwater Creek.

61. This reduction in peak flow is a reasonable starting point for lessening nuisance flooding. The Regional Water Board recognizes this is only a partial solution until channel and infrastructure improvements can be made. The Discharger is encouraged to develop a feasibility study and a practical implementation plan that could lead to infrastructure or improved stream capacity.

62. Staff recommends that the increase in flood frequency above background be accompanied by a reasonable exceedance probability.

63. Staff recommends that the Discharger be required to achieve the goal of 5 percent increase in peak flow above background in 10 years. This rate of attainment is slower than a total moratorium on timber harvesting would provide (3 years), but substantially faster than the next more intensive timber harvest scenario analyzed by staff (20 years). (See Figure 14 in WWDRs Attachment B, p. 27.) After further consideration, the Regional Water Board finds, however, that attainment of the rate of 7 percent increase in peak flow above background in 10 years is a sufficient initial reduction in peak flows due to canopy removal in as short a timeframe as is reasonable while still allowing timber harvesting.

64. The evidence indicates that, based on current information, controls on the scale and extent of timber harvesting are the only available means to reduce nuisance flooding. As a result of decreased channel capacity, increased flows from removal of canopy from timber harvesting and resultant flooding is far more frequent in Elk River and Freshwater Creek watersheds. These flooding events have increased from background levels of once every other year to 2.5 times per year in Freshwater Creek to 4 times per year in North Fork Elk River notwithstanding the harvesting of trees in compliance with HCP-required mitigation. The Discharger has proposed infrastructure improvements to eliminate flooding, but the effectiveness of such improvements is unknown because feasibility studies have yet to be conducted, and the availability of funding to construct the improvements has not been identified.

65. Accordingly, the waste discharge requirements impose a standard governing timber harvesting activities that is calculated, based on the Staff Peak Flow Model, to reduce the nuisance flooding in Freshwater Creek and North Fork Elk River watersheds.

66. While the standard may appear, at first glance, to impose a fixed limit on timber harvesting activities, it actually allows the Discharger much latitude in structuring its operations. The watershed-wide WDRs give a wide range of compliance options in all watersheds depending on the type of silviculture and the sensitivity of the landscape. In Freshwater Creek, for example, while only 38 acres per year are available if harvesting is conducted in high hazard zones, 144 acres per year are available in low hazard zones, using any silvicultural method. In North Fork Elk River, 21 acres per year are available in high hazard zones, using any silvicultural method, but up to 266 acres per year are available in low hazard zones, using any silvicultural method, provided that total harvesting does not exceed 264 clearcut-equivalent acres. In South Fork Elk River, 144 acres are available in any hazard zone, using any silvicultural method. Furthermore, the waste discharge requirements do not limit or in any way prescribe yarding methods, site preparation techniques, or the seasonal timing of operations within any year of permit coverage. These flexible approaches are designed to take into consideration the most sensitive features in each watershed and to derive a limit that will not exceed numerical discharge limits. These factors also take into consideration the specific watershed characteristics based on past response to logging and derive numeric limits for landslide sediment production and peak flow increases that will allow for recovery specific to each watershed. They afford the Discharger maximum flexibility to achieve compliance with the receiving water limitations.

67. Future conditions may indicate that an adjustment of the receiving water limitation is appropriate. For example, the infrastructure improvements proposed by the Discharger may be completed. Provided the improvements' reduction of nuisance can be quantified to the satisfaction of the Regional Water Board, it may be appropriate to evaluate what residual nuisance flooding remains and whether a relaxed receiving water limitation can effectively eliminate it. Until then, however, the only available means of ensuring compliance with the limitation is to curtail timber harvesting activities in compliance with the receiving water limitation.

Receiving Water Limitation for Sediment

68. As discussed above in Findings 17-21, the Regional Water Board has concluded that timber harvesting activities are the dominant factor in contributing to the 303(d) sediment impairment of Elk River and Freshwater Creek. The impairment of these watersheds demonstrates that sediment has diminished water quality so severely that they no longer attain beneficial uses of water.

69. The contribution to this continued impairment of water quality implicates provisions of the Basin Plan; specifically two prohibitions contained in the Basin Plan's *Action Plan for Logging, Construction and Associated Activities* (Basin Plan section 4, page 4-32.00), and two water quality objectives contained in the related *Guidelines for Implementation and Enforcement of Discharge Prohibitions Relating to Logging, Construction, and Associated Activities* (Basin Plan section 3, pages 3-2.00 and 3-3.00, and section 4, page 4-29.00):

> "1. The discharge of soil, silt, bark, slash, sawdust, or other organic or earthen material from any logging, construction or associated activity of whatever nature into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited." (Basin Plan, section 4, page 4-32.00.)
>
> "2. The placing or disposal of soil, silt, bark, slash, sawdust, or other organic or earthen material from any logging, construction, or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in the basin in quantities which could be deleterious to fish, wildlife, or other beneficial uses is prohibited." (Basin Plan, section 4, page 4-32.00.)
>
> "5. Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses (Basin plan, section 4, page 4-32.00)"; and
>
> "6. The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses." (Basin Plan, section 4, page 4-32.00).

70. Waste discharge requirements must implement the Basin Plan. The waste discharge requirements for timber harvesting plan activities, therefore, must include a standard that, when achieved, will represent compliance with the above Basin Plan provisions. Because the adverse effect on beneficial uses from sediment load is due to the condition of the receiving water, the standard has been expressed in the waste discharge requirements as a receiving water limitation.

71. The definition of the sediment load target for the receiving water limitation comes from a survey of the allowable sediment loads of other waterbodies in the North Coast. Staff reviewed fifteen US EPA approved Total Maximum Daily Loads (TMDLs) for sediment

on the North Coast. Ten of these TMDLs set the load allocations at or near 25% above the natural load. (See WWDRs Attachment C, p. 28.) Based upon these TMDLs, and until Elk River and Freshwater Creek loads allocations are established, staff recommended that the critical receiving water limitation be consistent with these completed analyses and should be set at 25% above natural conditions. The Regional Water Board concludes that, in advance of the more precise load allocation that will be produced by the TMDL process, that 25% above natural conditions serves as a reasonable estimate of allowable sediment load to regain beneficial uses in Elk River and Freshwater Creek.

71a. The Regional Water Board is receptive to the possibility that the Discharger's ingenuity may produce a method of performing more extensive harvesting activities and still achieving compliance with the sediment target. Unfortunately, the Regional Water Board is unaware of a monitoring method that will enable compliance to be determined on an ongoing basis. Should the Discharger manage to produce a plan for monitoring compliance with the sediment target as an alternative to the Staff Landslide Model that is acceptable to the Executive Officer, the Discharger may exceed the clearcut equivalent acreage specified by the model so long as compliance with the sediment target is maintained.

72. The method of establishing how that receiving water limitation may be achieved is the "Empirical Harvest-Related Landslide Sediment Delivery Reduction Model" (Staff Landslide Model). This model was developed as described below.

73. At the request and under the direction of licensed professionals on the Regional Water Board staff, scientists at the USDA Forest Service Pacific Southwest Research Station's Redwood Sciences Laboratory (RSL) in Arcata, CA prepared analyses of the data in PWA's reports for Bear Creek (Reid, 1998a) and for North Fork Elk River (Reid, 1998b). These analyses, authored by Dr. Leslie Reid, highlighted the strong relationship between recent logging and increases in landslide-delivered sediment in these watersheds. Furthermore, based on these relationships and the data available in PWA's reports, the analyses offered simple empirical models (each based on the same general approach) that could be used to determine future rates of timber harvesting that would adequately protect the beneficial uses of water from future harvest-related landslides, achieve water quality objectives, and allow for watershed recovery from cumulative impacts. Specifically, the approach identifies the rate of sediment production expected on forested acres and those expected from harvested acres.

74. The Independent Scientific Review Panel (December 27, 2002) reviewed CDF's application of the empirical peak flow model used to establish the annual timber harvesting limitation of 600 equivalent clearcut acres for the Elk River watershed. The Independent Scientific Review Panel concluded that "the approach does not take into account sediment production or changes in the sediment transport capacity of channels that might result from harvest." Further, because the CDF approach is designed to maintain the current level of impairment rather than promote recovery, this approach

"yields a high risk that current harvest rates will not achieve recovery of beneficial uses of water in impaired water bodies."

75. The Independent Scientific Review Panel found that Reid's approach, referred to in their reports as the "empirical sediment budget approach," was superior to the other methodologies it reviewed, given the information currently available in the Five Watersheds. They stated that the empirical sediment budget's use of sediment production ratios, rather than absolute rates, alleviated much of the difficulty associated with background rate estimation by determining a ratio of harvested to background rates. Acknowledging criticisms to the empirical sediment budget approach (primarily that it did not consider areas that were off-limits to harvesting because of high landslide potential), the Independent Scientific Review Panel identified means of addressing those issues. In Appendix C of its first report (ISRP, 2002), the Independent Scientific Review Panel provided a detailed discussion and derivation of a refined version of Dr. Reid's initial work in which they identified how to consider the sediment production from areas with different landslide hazards. Regional Water Board staff have modified the original model based on those recommendations and incorporated them into the Staff Landslide Model.

76. On October 23, 2003, the California Geological Survey requested the Technical Advisory Committee on Forest Geology (TAC) of the State Mining and Geology Board to review a forerunner of the Staff Landslide Model, developed by the Redwood Sciences Laboratory. The TAC review was focused on a single document. Regional Water Board staff determined that a review of all the documents was necessary for a comprehensive review of the modeling approach. The TAC concluded from their limited review, in a letter dated November 15,2004, that the version of the empirical modeling approach they reviewed was not an appropriate tool. However, the TAC reviewed a version of the model that Regional Water Board staff are not using.

77. According to Dr. Roy Sidle, the Staff Landslide Model focuses too narrowly on one sediment source category (i.e., non-road related landsliding) that, in his view, constitutes only a small fraction of the total amount of the sediment generated in the watershed area in a given year. Dr. Sidle's view is outweighed by other evidence in the record. The Discharger's own sediment inventories show that sediment delivered from this source category represents as much as 23% of all sediment delivered to North Fork Elk River, and as much as 51% of all sediment delivered to Freshwater Creek, during the period from 1955 to 1997. (Letter from Issuance Team to Kuhlman and Spiess dated April 27, 2006, p. 5; WWDRs Attachment C, pp. 10-11, 13-14; Response to Comments, Sec. 9, pp. 11-12; Supplemental Response to Comments, pp. 16-17; and oral testimony by David Kuszmar at the April 24-25, 2006 Regional Water Board hearing.) The Regional Water Board is entitled to rely on the opinions of its staff and those opinions constitute substantial evidence. (*Rancho Cucamonga, supra*, 135 Cal.App.4th at p. 1389.) Based on the opinion of its staff, the Regional Water Board finds that the comment has been adequately addressed and that the weight of evidence in the record indicates that non-road related landslides are a significant source of sediment.

78. Dr. Sidle claims that the Staff Landslide Model does not systematically assess important terrain and geologic attributes in its "high" and "low" hazard designations. However, these two data sets do indicate a significant difference in landslide susceptibility between high and low hazard areas (See WWDRs Attachment C, p. 27.) In its June 17, 2004 request for Report of Waste Discharge, staff requested from the Discharger a map of landslide hazard risks and suggested several types and products that would be relevant for developing a Landslide hazard map. The Discharger provided products that it felt were appropriate, in which "low" and "high" landslide hazard ratings were designated. Using the information provided, staff compared harvested to unharvested areas, low and high landslide hazard risks and available harvest history to ascertain the significance of high and low landslide hazard ratings in response to logging. Staff found that the relationship was significant between hazard categories in both the Freshwater Creek and North Fork Elk River watershed. (See WWDRs Attachment C, pp. 24-26; September 2, 2005 Response to Comments, Sec. 9, pp. 13-15; and oral testimony by David Kuszmar at the April 24-25, 2006 Regional Water Board hearing.) The Regional Water Board is entitled to rely on the opinions of its staff and those opinions constitute substantial evidence. (*Rancho Cucamonga, supra,* 135 Cal.App.4th at p. 1389.) Based on the opinion of its staff, the Regional Water Board finds that the comment has been adequately addressed and that the weight of evidence in the record indicates that the methodology used for assessing landslide hazard is sound.

79. Dr. Sidle argues that the model was improperly based on an assessment of landslides from only a few storms over two photoperiods. In reality, these storms were only part of the basis of the model. They were used to represent the behavior of slopes harvested using improved modern methods. Staff then applied this information to the historic landslide data from 1955-1997 to improve its accuracy, accounting for the lesser impact of modern harvesting methods. Thus, the entire data set is much larger than just a few storms over two photoperiods as contended by Dr. Sidle. The Regional Water Board is entitled to rely on the opinions of its staff and those opinions constitute substantial evidence. (*Rancho Cucamonga, supra,* 135 Cal.App.4th at p. 1389.) Based on the opinion of its staff, the Regional Water Board finds that the comment has been adequately addressed and that the weight of evidence in the record indicates that the Staff Landslide Model is sound.

80. Dr. Sidle claims that the model inappropriately does not evaluate or give credit for best management practices that reduce landslide and surface erosion and sediment delivery. As noted in Finding 16, the Forest Practice Act and Rules are not certified as best management practices. Additionally, as Dr. Jeffery Barrett confirmed at the April 24-25, 2006 Regional Water Board hearing, the Discharger does not presently have a program to mitigate sediment discharges from landsliding. Nor has the Discharger proposed to employ best management practices to prevent sediment delivery from landslides. Accordingly the availability of best management practices for landsliding is speculative. Moreover, as noted in Finding 30, the interim HCP prescriptions have recently been weakened, allowing harvesting on streamside and potentially unstable areas that were previously off-limits under the interim prescriptions. The Regional Water Board is

entitled to rely on the opinions of its staff and those opinions constitute substantial evidence. (*Rancho Cucamonga, supra,* 135 Cal.App.4th at p. 1389.) Based on the opinion of its staff, the Regional Water Board finds that the comment has been adequately addressed and that the weight of evidence in the record indicates that the staff appropriately considered the potential effects of current management practices.

81. The above shows the detailed development process from which the Staff Landslide Model was derived. Regional Water Board staff followed the Independent Scientific Review Panel recommendations and refined and more fully developed the Staff Landslide Model from that which the TAC reviewed. Based on that development process, the lack of merit to criticisms as discussed in the above findings, and other evidence in the record, the Regional Water Board concludes that best available information demonstrates the Staff Landslide Model is a scientifically sound method for describing the relationship between timber harvesting and conditions in the receiving water. The Regional Water Board is entitled to rely on the recommendation of staff to use the Staff Landslide Model and that staff recommendation constitutes substantial evidence. (*Rancho Cucamonga, supra,* at p. 1389.)

82. Future conditions may indicate that an adjustment of the receiving water limitation is appropriate. The monitoring and reporting program will generate information concerning changes in landslide patterns and delivery rates. Based on this information, the Regional Water Board may find it appropriate to make adjustments to the Staff Landslide Model. Until then, however, the only available means of ensuring compliance with the limitation is to curtail timber harvesting activities in compliance with the receiving water limitation.

Compliance with Water Code Section 13360

83. Under Water Code section 13360, the regional board may not "specify the design, location, type of construction, or particular manner" of compliance with a permit. The proposed watershed-wide WDRs do not violate section 13360 because (1) they are appropriate numeric receiving water limitations interpreting and implementing narrative Basin Plan prohibitions and objectives, as set out below, (2) the proposed limits do not prescribe the particular manner of compliance because they allow the Discharger flexibility in choosing how to modify harvesting operations, (3) to the extent that options to achieve compliance are few, that constraint flows from the inability of years of cooperative efforts between the Discharger and staff—and most recently the Discharger's own set of watershed-wide WDRs—to produce a feasible alternative.

84. The watershed-wide WDRs contain necessary numeric interpretations and implementation of applicable narrative Basin Plan objectives and prohibitions, which are as set out in Section IV in the proposed watershed-wide WDRs.

85. The watershed-wide WDRs, as explained in Finding 66, above, allow the Discharger considerable flexibility to meet the receiving water limitations. Accordingly, they do not dictate the manner of compliance in violation of Section 13360.

86. Additionally, the absence of a broad array of options to comply with the watershed-wide WDRs does not violate Section 13360. As explained by the California Court of Appeal in *Tahoe-Sierra Preservation Council* v. *State Water Resources Control Board* (1989) 210 Cal.App.3d 1421 (*Tahoe-Sierra*):

> "Water Code section 13360 is a shield against unwarranted interference with the ingenuity of the party subject to a waste discharge requirement; it is not a sword precluding regulation of discharges of pollutants. It preserves the freedom of persons who are subject to a discharge standard to elect between available strategies to comply with that standard. That is all that it does. If, under present conditions of knowledge and technology, there is only one manner in which compliance may be achieved, that is of no moment. [Citation.] *Where the lack of available alternatives is a constraint imposed by present technology and the laws of nature rather than a law of the Water Board specifying design, location, type of construction or particular manner of compliance there is no violation of section 13360.*"

(*Id.* at 1438 [italics added].)

In *Tahoe-Sierra* it was argued that the implementation of applicable Basin Plan standards, specifically narrative prohibitions, that resulted in restrictions on land use restrictions, by limiting areas to be covered by impervious surfaces using a classification system, runs afoul of section 13360. The Court upheld the Regional Board's restrictions.

87. Of particular note, *Tahoe-Sierra* court found it persuasive that the Basin Plan prohibition in question allowed landowners to, on a case-by-case basis, prove that an alternative means of compliance would be equally effective as the coverage limits imposed by the prohibition. (*Tahoe-Sierra, supra,* 210 Cal.App.3d at pp. 1429, 1441.)

88. The watershed-wide WDRs contain similar provisions. They explicitly allow the Discharger to demonstrate that future data (e.g., landslide patterns, sediment delivery rates, stream conveyance capacity, infrastructure improvements) warrants a relaxation of any or all of the receiving water limitations. (Sections IV(A)(1)(c) & (d), (2)(b); IV(B)(1)(c), (2)(c).) Accordingly, the Discharger is free to find ways of reducing the effects of its timber harvesting activities and thereby demonstrate that rate of harvest can increase without exceeding the receiving water limitations.

89. This opportunity makes the watershed-wide WDRs even more flexible than the coverage limitations in *Tahoe-Sierra.* The landowners in that case were not afforded the opportunity to request changes in the Regional Board's restrictions; instead, they were left to design their own site-specific plan to achieve equivalent reductions in sediment discharge. Here, the Discharger is expressly given the opportunity to demonstrate that changes in the way receiving water compliance is determined are appropriate. The

superior elasticity of the watershed-wide WDRs persuades the Regional Water Board that they adhere to section 13360.

90. To the extent compliance options are limited, that state of affairs is a creation of the futility of other alternatives rather than artificial constraints imposed by the Regional Water Board. The watershed-wide WDRs follow a lengthy history of failure to otherwise address the sediment and flooding problems from timber harvesting activities in the Elk River and Freshwater Creek watersheds. The Regional Water Board has made a concerted effort to work with this Discharger and within the context of the Forest Practice Act and Rules (FPA&R) for 17 years, and the Discharger's HCP and Sustained Yield Plan for over six years to address the cumulative impact problems in these watersheds without, until very recently, getting to the issue of discharge associated with rate-of-harvest. The FPA&R have never been certified by the U.S. Environmental Protection Agency as best management practices. While the Regional Water Board has found the FPA&R to work fairly well in most cases to achieve water quality protections with little additional regulatory constraints by the Board in other watersheds, cumulative impacts in these two watersheds affirm that the existing methods used cannot be relied upon to surmount the water quality problems created by long-term intensive harvesting activities. This Regional Water Board has spent the last six-plus years seeking and exploring different mechanisms to reduce the impacts of the Discharger's intensive harvest practices to a level that will not violate Basin Plan standards or contribute to continued nuisance flooding. Repeatedly, from staff analyses, numerous independent reports, twice by a panel of highly qualified national experts (the Independent Scientific Review Panel), and ultimately, by the Regional Water Board itself (in December 2003), the conclusion came back that existing efforts were not adequate to address the problem, and that the scale and intensity (harvest rate) of timber harvest overwhelms the mitigations in these watersheds, resulting in discharges in amounts deleterious to beneficial uses and other violations of Basin Plan standards.

91. Even if, for the sake of argument, the watershed-wide WDRs do effectively leave only one option open to the Discharger, they do not violate Section 13360. In *Tahoe-Sierra,* the court rejected the claim that the availability of even a single means of compliance does not, by itself violate Section 13360:

> "Plaintiffs appear to argue that the Water Board has violated section 13360 because the Water Board expects that the only practical manner of complying with the discharge standard is to comply with the coverage restrictions. Plaintiffs' claim, boiled to its essence, is that if only one manner of meeting a discharge standard is feasible the Water Board may not prohibit the discharge. This contention is devoid of merit."

(*Id.* at p. 1438.)

92. The Discharger already presented an alternative method of compliance to the Regional Water Board: its own set of watershed-wide WDRs. By letter dated January 23, 2006,

the Discharger transmitted its own sets of watershed-wide WDRs for both watersheds (Elk River and Freshwater Creek) for consideration by the Regional Water Board. The Discharger's proposed Alternative WWDRs allow new timber harvest related discharges of sediment into the sediment-impaired waters of Elk River and Freshwater Creek (prior to the development and implementation of TMDLs) through four primary requirements, including: (1) an annual limit on canopy removal, designed to maintain current nuisance conditions; (2) three feasibility studies to identify options for nuisance flooding reduction, two of which are already underway without Regional Water Board staff participation or oversight, and none of which are required to be implemented upon completion; (3) mitigation credit for treating active and potential sediment delivery sites, which are already required to be treated by existing CAOs;[5] and (4) monitoring already being conducted and/or already included in the staff watershed-wide WDRs.

93. These watershed-wide WDRs are not a feasible alternative because they cannot reasonably be expected to achieve compliance with the Water Code or Basin Plan as discussed below.

94. The Discharger proposes to incorporate annual limits on canopy removal in its Alternative WWDRs, based on CDF's applications of the Empirical Peak Flow Reduction Model. By incorporating a limit on canopy removal based on this application into its Alternative WWDRs, the Discharger has essentially proposed to maintain the same canopy removal restrictions currently in place. Accordingly, the Discharger's watershed-wide WDRs would yield no reduction in peak runoff flows caused by harvesting.

95. The Discharger proposes to conduct three feasibility studies to reduce flooding. The studies will evaluate options for nuisance flooding relief through vegetation removal in riparian areas, infrastructure improvements at key locations, and dredging in depositional areas in Elk River and Freshwater Creek. While many parties familiar with the current flooding conditions in Elk River and Freshwater Creek appear to agree that direct, mechanical improvements to the watercourses and riparian areas will ultimately be necessary to improve channel capacity and flood routing in flood affected areas, the Discharger'swatershed-wide WDRs requires only studies. Of course, studies are necessary to correctly identify the problems and solutions to existing flooding problems. Until they are complete, however, whether relief projects can feasibly eliminate nuisance flooding is entirely unknown. Moreover, the Discharger, in its watershed-wide WDRs does not commit to implementing whatever feasible projects are called for by the studies. In fact, in its submittal of April 27, 2006, the Discharger agrees to provide only a fixed amount of funding ($50,000 per year in each watershed) toward these projects without any evident regard for whether that amount will be sufficient or not. The Discharger's watershed-wide WDRs are inadequate because they do not ensure the elimination of nuisance flooding as required by the Water Code.

[5] Specifically, CAO Nos. R1-2002-0114 (for North Fork Elk River), R1-2004-0028 (for South Fork and Mainstream Elk River, and R1-2006-0046 (for Freshwater Creek).

96. The Discharger proposes to compensate for new discharges of sediment associated with each Timber Harvesting Plan (THP) by incorporating corrective actions at active and potential discharge sources in the watersheds. Benefits from proposed corrective actions in each THP would be estimated in terms of yards of sediment "saved." These benefits would be used to "offset," at a ratio of 5:1, estimates of yards each proposed THP is expected to deliver to the watercourse. While the Discharger's expressed intentions to conduct corrective work at failing roads, watercourse crossings, and other active and potential sediment delivery sites are commendable and appropriate this work amounts to no change in the status quo. The sediment sources the Discharger proposes to control are those created by its past activities. Due to the level of existing impacts in the Elk River and Freshwater Creek watersheds, the Regional Water Board has already required the Discharger, through CAOs, to inventory, prioritize, and correct the controllable sediment discharge sites on its property. Effectively, then the Discharger proposes to offset new discharges of sediment using credits for performing cleanup activities already mandated by enforcement orders issued by the Regional Water Board. The Regional Water Board is receptive to the concept of offsets where a proposal calls for the cleanup of an orphaned site, because such action is not otherwise legally mandated by the Water Code. The Discharger's watershed-wide WDRs are insufficient because they commit only to carry out their existing obligations under the Water Code.

97. Finally, the Discharger's watershed-wide WDRs do not mandate compliance with the Water Code or the Basin Plan in terms of sediment discharges. Rather, they allow the Discharger to continue discharging sediment at the same rate (i.e., "not net discharge"), which would perpetuate exceedances of Basin Plan provisions and impairment of the receiving water. Neither do the WDRs offered by the Discharger reduce nuisance flooding.

98. The inability of the Discharger's watershed-wide WDRs to ensure compliance with the Basin Plan and Water Code reinforces the conclusion that the receiving water limitations contained in the staff's watershed-wide WDRs are, based on the best available information, the only available means of adhering to legal requirements governing the discharge of waste.

Appropriateness of WDRs

99. The Regional Water Board has a statutory obligation to adopt Waste Discharge Requirements whenever there is a discharge of waste occurring or proposed, or a threat exists for the discharge of waste. An exception to this requirement is where the Regional Water Board finds that a waiver of waste discharge requirements for a specific type of discharge is in the public interest (CWC section 13260-13269). The Regional Water Board must craft WDRs to implement the Basin Plan, (CWC § 13263(a)) and to be consistent with policies governing water quality adopted by the State Water Resources Control Board, including the Plan for California's Nonpoint Source Pollution Control Program and Five-Year Implementation Plan (December, 2003). The proposed watershed-wide WDRs are consistent with both the Basin Plan and the State Water

Board's *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program* (May 2004).

100. As required by California Water Code section 13263, these watershed-wide WDRs are crafted to implement the Basin Plan, and in so doing, the Regional Water Board has taken into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other (including previous) waste discharges, the need to prevent nuisance, and considerations of the provisions of California Water Code section 13241.

101. As directed by statute, the attached watershed-wide WDRs are calculated to "attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible." (California Water Code section 13000.)

102. Based in part on due consideration of the available evidence and public policy considerations relating to Findings 105-112 below, the Regional Water Board finds that the receiving water limitations and other provisions set out in the watershed-wide WDRs are reasonably necessary to protect beneficial uses, to prevent nuisance, to comply with applicable prohibitions, and to achieve water quality objectives.

103. Waste Discharge Requirements must implement the Basin Plan, which prohibits the discharge of sediment waste from timber harvest related activities in amounts deleterious to beneficial uses (Basin Plan pp. 4-28 - 4-30), and must be crafted to address the need to prevent nuisance (California Water Code section 13263(a).) California Water Code section 13050 defines nuisance to mean anything which meets all of the following requirements:

(1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere 'with the comfortable enjoyment of life or property.

(2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

(3) Occurs during, or as a result of, the treatment or disposal of waste.

The criteria of California Water Code section 13050 are met in Elk River. It is therefore the right and responsibility of the Regional Water Board to control the nuisance flooding in Elk River. Based on the extensive documentation of nuisance flooding, the relationship of increased peak flows to canopy removal, and the obligation of the Regional Water Board to address nuisance, the watershed-wide WDRs incorporate a limitation on peak flow increases.

104. It is recognized that the Z'Berg-Nejedly Forest Practices Act of 1973 (FPA) provides that timber operations conducted consistent with the FPA in a timber production zone shall not constitute a nuisance. (Gov. Code section 51115.5(a).) In this setting however, it is the increased peak flows and landslide-related deliveries of sediment from disturbed lands that create the nuisance conditions, and these discharges are what is regulated by the receiving water limits in these watershed-wide WDRs to protect beneficial uses and prevent nuisance, as required by the Porter-Cologne Water Quality Control Act.

Economic Considerations

105. Although Water Code section 13241 directs the Regional Water Board to take into account "economic considerations," it does not prescribe a particular manner for doing so. The method of evaluating economic considerations is effectively within the discretion of the Regional Water Board to determine. (*City of Arcadia* v. *State Water Resources Control Board* (2006) 135 Cal.App.4th 1392, 1415.) It is sufficient to satisfy the command of section 13241 if the Regional Water Board has considered the "costs of compliance" with waste discharge requirements. (*City of Burbank* v. *State Water Resources Control Board* (2005) 35 Cal.4th 613, 625; see also *City of Arcadia, supra,* 135 Cal.App.4th at pp. 1415-1419 [upholding trash TMDL's discussion of compliance costs]; *Rancho Cucamonga, supra,* 135 Cal.App.4th 1377, 1386 [requirement demands only a discussion of the compliance costs].)

106. The costs of compliance were discussed at the April 24-25, 2006 hearing. On behalf of the Discharger, Dr. Barrett asserted that the decrease in harvests incurred by the company as a consequence of complying with the WWDRs would result in a loss of revenue and layoffs.

107. Costs of compliance with the WWDRs were evaluated, elsewhere, chiefly in a September 2, 2005 report entitled "Economic Considerations Associated with the Regulation of PALCO's Timber-Harvest-Related Discharges in Elk River and Freshwater Creek Watersheds" ("Economic Report").[6] The 17-page Economic Report addresses economic considerations from both a macroscopic and microscopic perspective. Initially, the report explains that, on a regional scale, the WWDRs could conceivably have many positive economic effects. These include reductions in losses in many areas: commercial and non-commercial fisheries; costs associated with sediment source abatement activities such as road repairs and upgrades; landslide stabilization and remediation; damage to homes and disruption of life and livelihood caused by flooding; damage to roads and bridges from flooding; dredging of Humboldt Bay as well as upstream problem flooding

[6] The Economic Report was prepared with the assistance of Mr. Michael Gjerde who is on staff with the Economics and Effectiveness Unit of the Office of Statewide Initiatives for the State Water Resources Control Board. Mr. Gjerde provided the core financial analytical work in the report. Mr. Gjerde has Masters degrees in Geology, Ecology, and Agricultural and Resource Economics. In addition to his related work with the State Water Board, Mr. Gjerde has experience in the private sector reviewing financials for companies in the field of natural resource extraction, and as a loan analyst.

areas; adverse effects on recreational uses; and impacts to and the costs of replacing domestic and agricultural water supplies.

108. The Economic Report also documents negative costs associated with the WWDRs. It mentions that the Discharger has asserted that the loss of ability to harvest one Timber Harvesting Plan is equal to a cost of $1.25 million in net revenue. The Report opines that the claim mischaracterizes the net revenue as a "loss." A true loss in the agricultural sector would occur, for instance, if a severe frost ruins a field of a given crop rendering it permanently unmarketable. In the logging sector, when a harvest is curtailed, the trees do not vanish; rather they continue to grow and increase in value. They are therefore available for harvest and sale at a later time. Accordingly, rather than a "loss," the more appropriate term for this is "deferred income."

109. On grounds that the Discharger has not adequately documented claims of negative costs, the report presents the analysis of costs to the Discharger derived independently from the company's Securities and Exchange Commission filings, company commissioned reports and bond offering documents. The report estimates that while the WWDRs would curtail harvesting, the area affected amounts to a very small portion of harvest by the company overall. The report concludes that company management actions, chiefly the decision to agree to high interest payments, are responsible for the company's tenuous financial position. Thus, the Report determines that these decisions far outweigh any impact from deferral of income caused by WWDR-related harvest reductions.

110. Additionally, there will be foreseeable short-term effects on "downstream" economics, i.e., the number of jobs available may be reduced due to the short-term reduction in log availability and related local economic effects. As observed in the Economic Report, however, the Discharger's choice of a boom and bust business model will inevitably result in layoffs as an inherent function of that plan, as set out in the Discharger's own documents. Moreover, one effect of a slowdown in cut-rate will be to preserve some of these jobs for the longer term. This deferral in some harvesting will therefore likely result in some short-term job losses while deferring some layoffs to a later date. At the larger level, any threats to the ultimate viability of the company appear to be a function of the Discharger's chosen business model and inherent risks embedded therein.

111. Supplementing the Economic Report are additional documents, including one authored by the Discharger, a response by Mr. Michael Gjerde, and a summary of Scotia Pacific Financial Results.

112. The Regional Water Board has considered the testimony, evidence, and other available information on the economic impacts implicated by discharges of sediment, including financial burdens related to sediment discharges as borne by downstream landowners and residents and the larger community, the impairment of beneficial uses, including anadromous fisheries, and the cost of compliance with the watershed-wide WDRs. The Regional Water Board finds that the costs of compliance are reasonable under the circumstances.

Antidegradation

113. This watershed-wide WDR Order (Attachment 1) is consistent with the provisions of State Water Resources Control Board (State Water Board) Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California.* This Order will result in the reduction in the discharge of waste, not an increase.

114. Prescription of waste discharge requirements for the Discharger's Timber Harvesting Plan Activities in the Elk River watershed are appropriate given the history, current condition of the watershed and its streams, the inapplicability of the GWDR and Categorical Waiver Orders, and as required by the California Water Code.

CEQA Compliance

114a. There are two types of CEQA analysis. The first is for individual Timber Harvesting Plans under the CDF. The second is for watershedwide WDRs as contained in the initial study and negative declaration. (See Findings 118-124.)

115. Timber Harvesting Plan Activities covered under these watershed-wide WDRs must, as a precondition, have achieved compliance with the California Environmental Quality Act (CEQA) (Pub. Resources Code section 21000 et seq.) through the CDF's Timber Harvesting Plan (THP) approval process. In issuing THPs, CDF acts as "lead agency," using a certified "functional equivalency" process, producing the equivalent to an Environmental Impact Report.

116. The Regional Water Board does not grant timber harvesting permits, but reviews these permitted activities and their attendant environmental documents to determine and require compliance with the Basin Plan and the Porter-Cologne Water Quality Control Act. In that process, the Regional Water Board acts as a responsible agency under CEQA, relying on the environmental review documents prepared by CDF. CEQA specifically provides that in so doing, the environmental documents prepared by the lead agency are to be conclusively presumed adequate, with limited specified exceptions, and must be relied upon by the responsible agency in complying with CEQA. (Pub. Resources Code, section 21167.2; Title 14, California Code of Regulations, section 15231.) In acting as a responsible agency reviewing these permitted operations, the Regional Water Board exercises its authority to require any additional regulatory restrictions that may be necessary to go beyond mere avoidance of "significant adverse environmental impacts," to require whatever is necessary to comply with the requirements of the Basin Plan and Porter-Cologne Water Quality Control Act.

117. These watershed-wide WDRs are the mechanism by which the Regional Water Board will assure the maintenance, restoration, or enhancement of water quality, in compliance with the Basin Plan and other applicable water quality laws, in the performance of the Board's responsible agency role under CEQA. Consistent with the CEQA Guidelines' Class 7 Exemption, these watershed-wide WDRs are an action taken by a regulatory

agency "to assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment." (Title 14, California Code of Regulations, section 15307.) Similarly, consistent with Class 8, WDRs are an action taken by a regulatory agency "to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment." (Title 14, California Code of Regulations, section 15308.)

118. Despite the eligibility for these exemptions, out of an abundance of caution, and knowing the controversial nature of Timber Harvesting Plan Activities and all regulatory actions relating thereto, the Regional Water Board, acting as the lead agency for this "project" under CEQA, has conducted an Initial Study in accordance with Title 14, California Code of Regulations, section 15063. (The "project" for CEQA purposes is the adoption of the attached watershed-wide WDRs).

119. The Regional Water Board staff has prepared a proposed Negative Declaration, a copy of which is attached hereto, in accordance with CEQA and the CEQA Guidelines (Title 14, CCR Section 15000 et seq.). The Negative Declaration concludes that the adoption of these watershed-wide WDRs will not have a significant adverse impact on the environment, individually or cumulatively.

120. Copies of the proposed Negative Declaration were transmitted to all agencies and persons known to be interested in this matter according to the applicable provisions of CEQA. Both documents are included as Attachment 2.

121. The Regional Water Board conducted public hearings on April 24 and 25, 2006, in Eureka, California and considered all evidence concerning this matter.

122. The Regional Water Board conducted a public meeting on May 8, 2006, in Santa Rosa, California.

123. The proposed Negative Declaration is fully supported by the record and the law. There is no evidence in the record to support a fair argument that these watershed-wide WDRs will result in significant adverse environmental effects.

124. The Regional Water Board, in accordance with CEQA and the CEQA Guidelines, determines that there will be no significant adverse environmental impacts, individually, or cumulatively from this Resolution and the attached watershed-wide WDRs, provided that the Discharger complies with its terms and provisions.

Equal Protection

125. The Discharger claims that the watershed-wide WDRs unfairly single out their operations for strict regulation while applying less stringent standards to others. This statement is incorrect. The Regional Water Board intends to apply the Staff Peak Flow and Staff Landslide Models in its permitting of all timber harvest activities in these watersheds. WDRs for Green Diamond are scheduled for issuance in summer of 2006 and WDRs for non-industrial landowners are scheduled for issuance in February 2007. Accordingly, while the Discharger will be the first permittee, the best available science and information for these specific waters which underlies the Peak Flow and Landslide Models will be consulted for potential applicability when drafting waste discharge requirements for all timber harvesting activities in the watersheds. Prior to establishing such requirements, however, the Regional Water Board will hold a public hearing to consider, for example, the specific circumstances informing the applicability of the science underlying the models.

126. Notably, the lands regulated by the watershed-wide WDRs collectively amount to a minority of the Discharger's total ownership. The balance of their timberland activities is regulated under the less restrictive General WDRs.

Due Process

127. The Regional Water Board afforded the Discharger and all interested persons notice and a fair hearing. In this regard, the Regional Water Board hereby adopts the Final Order After Status Conference dated April 23, 2006, and signed by Vice Chair John Corbett, as findings in support of this Resolution as if set forth here verbatim.

128. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to take this action, and has provided them with an opportunity for a public hearing and an opportunity to submit their written and oral comments and recommendations.

129. No designated party objected to any written material as hearsay. Accordingly, all of the material in the files of the Regional Water Board and materials submitted by designated parties and interested persons, unless specifically excluded by the Vice Chair or Regional Water Board, is hereby admitted to the administrative record of proceedings for all purposes. (Gov. Code Section 11513(d); 1 California Administrative Mandamus, section 6.157, p. 277.)

130. The presiding officer has discretion, where the hearing notice has not been complied with, to exclude proposed testimony or a proposed exhibit into evidence, and shall refuse to do so where there is a showing of prejudice to any party or the Board. The presiding officer may modify this rule where a party demonstrates that compliance would create severe hardship. (Title 23, California Code of Regulations, section 648.4.)

131. The presiding officer has discretion to exclude evidence if its probative value is substantially outweighed by the probability that its admission will necessitate undue consumption of time. (Gov. Code, section 11513(f); see Title 23, California Code of Regulations, section 648.5.1.)

132. This matter was subject to a detailed Hearing Procedure and Meeting Procedure. The Hearing Procedure required that evidence be submitted in writing by a deadline and that oral testimony would be limited to a summary of that evidence, with the exception of narrowly defined rebuttal.

133. Upon objection, the Vice Chair ruled that slides in the computer presentation by Dr. Kate Sullivan entitled "Solving Watershed Sediment and Flooding Problems in Elk River and Freshwater Creek," contained evidence not timely submitted in writing and therefore excluded aspects from the record. To effectuate the ruling of the Vice Chair slide 17 of that presentation (entitled "Infrastructure Improvements") is modified to delete the line depicted on the graph as "With Infrastructure." For the same reason, slide 45 (entitled "Sediment concentration in North Fork Elk has declined each year since 2003") is modified to eliminate the line on the graph depicted as "HY 2006."

134. Upon objection, the Vice Chair ruled that a DVD submitted by the Owners as an attachment to the group's comment letter dated March 22, 2006, would be excluded from the record in its entirety. The Vice Chair found that the DVD was not properly served on the parties (including, at a minimum the Elk River Residents Association), did not contain instructions on how to access the information and was unreadable by a couple designated parties' standard DVD players and computers, contains information cumulative to what the Owners submitted in writing and presented in live testimony to the Board, contains information of low probative value for the time required to view it, and that as the Owners presented live testimony they would not be prejudiced by its exclusion.

135. Upon objection, the Vice Chair denied the Owners' request to present testimony from a witness not named on the group's witness list.

136. The foregoing evidentiary rulings by the Vice Chair were properly rendered and are therefore affirmed by the Regional Water Board.

Remedies

137. As provided by law, under Water Code section 13320, aggrieved parties may petition this matter to the State Water Board within 30 days of the date of this resolution.

Due Process

138. All persons have the right to apply for individual Waste Discharge Requirements subject to hearing and a specific proposal as provided by our 2003 Motions, true and correct copies of which are attached as Attachment 3.

139. The Executive Officer has been directed to develop an expedited watershed specific set of waste discharge requirements for non-industrial timberland owners in Elk River and Freshwater Creek watersheds.

Cleanup and Abatement Order Non-Compliance

140. The Regional Water Board recognizes that the Discharger is out of compliance with certain of the Cleanup and Abatement Orders discussed above. The appropriate method for addressing such non-compliance is through enforcement (e.g., administrative civil liability) not via curtailing eligibility for coverage under the watershed-wide WDRs.

Grandfathering

141. The Grandfathering provisions (Section V(F)(1) & (2)), contained in the draft watershed-wide WDRs are modified to state that the acreage previously harvested under the General WDR does not count against the allocation of harvest acreage specified by the models in the watershed-wide WDRs. The grandfathering concept was created for purposes of administering the interim permitting. In light of the adoption of watershed-wide WDRs, this concept is no longer applicable.

RESOLUTION

Therefore It Is Hereby Resolved That:

1. The Regional Water Board approves and adopts the Initial Study and Negative Declaration prepared for the issuance of watershed-wide WDRs (Attachment 2);

2. The Executive Officer is directed to file all appropriate notices;

3. Waste discharge requirements are appropriate to direct that discharges of waste associated with the Discharger's Timber Harvesting Plan Activities adhere to the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder;

4. The Regional Water Board accordingly prescribes waste discharge requirements for the Elk River watershed by adopting Order No. R1-2006-0039, which appears as Attachment 1 to this Resolution; and

5. The Executive Officer is directed to issue, under her delegated authority, Monitoring and Reporting Program (No. R1-2006-0039) as an enforceable order under Water Code section 13267(b) (Attachment 4). The Executive Officer may amend that order from time to time as the facts and circumstances may warrant, so long as it continues to provide the information necessary to implement the attached watershed-wide WDRs.

CERTIFICATION

I, Catherine Kuhlman, Executive Officer do hereby certify that the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, North Coast Region, on May 8, 2006.

Catherine Kuhlman

Catherine Kuhlman
Executive Officer

Attachment 1

Waste Discharge Requirements
Order No. R1-2006-0039

Attachment 2

Initial Study and Negative Declaration

Attachment 3

Regional Water Board
December 3, 2003 Adopted Motions

Attachment 4

Monitoring and Reporting Program Order No. R1-2006-0039